

gallium nitride group compound semiconductor increases substantially proportionally with said mixing ratio so as to obtain a desired carrier concentration of said gallium nitride group compound semiconductor; and

forming said gallium nitride group compound semiconductor by feeding said silicon-containing gas and other raw material gases at a mixing ratio set above.

See the attached Appendix for the changes made to effect the above-amended claims.

Please add the following new claims:

119. (New) A method for producing a gallium nitride group compound semiconductor according to claim 20, wherein said electron concentration ranges from $1 \times 10^{17}/\text{cm}^3$ to $1 \times 10^{19}/\text{cm}^3$.

120. (New) A method for producing a gallium nitride group compound semiconductor according to claim 22, wherein said electron concentration ranges from $1 \times 10^{17}/\text{cm}^3$ to $1 \times 10^{19}/\text{cm}^3$.

121. (New) A method for producing a gallium nitride group compound semiconductor according to claim 24, wherein said electron concentration ranges from $1 \times 10^{17}/\text{cm}^3$ to $1 \times 10^{19}/\text{cm}^3$.

122. (New) A method for producing a gallium nitride group compound semiconductor according to claim 119, wherein said gallium nitride group compound semiconductor is formed on or above a buffer layer which is formed on a sapphire substrate.

123. (New) A method for producing a gallium nitride group compound semiconductor according to claim 120, wherein said gallium nitride group compound semiconductor is formed on or above a buffer layer which is formed on a sapphire substrate.

124. (New) A method for producing a gallium nitride group compound semiconductor according to claim 121, wherein said gallium nitride group compound semiconductor is formed on or above a buffer layer which is formed on a sapphire substrate.

125. (New) A method for producing a gallium nitride group compound semiconductor according to claim 122, wherein said buffer layer is formed on said sapphire substrate by using an organometallic compound vapor phase epitaxy at a growth temperature lower than that of said gallium nitride group compound semiconductor.

126. (New) A method for producing a gallium nitride group compound semiconductor according to claim 123, wherein said buffer layer is formed on said sapphire substrate by using an organometallic compound vapor phase epitaxy at a growth temperature lower than that of said gallium nitride group compound semiconductor.

127. (New) A method for producing a gallium nitride group compound semiconductor according to claim 124, wherein said buffer layer is formed on said sapphire substrate by using an organometallic compound vapor phase epitaxy at a growth temperature lower than that of said gallium nitride group compound semiconductor.
